

### **REMARKS**

This paper is responsive to the Office Action mailed May 17, 2005. All of the rejections are respectfully traversed. Reexamination and reconsideration of the application are respectfully requested.

#### **The Office Action**

In the Office Action mailed May 17, 2005:

**claims 4-9** were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,088,137 to Tomizawa ("Tomizawa") in view of U.S. Patent No. 6,516,100 B1 to Qian ("Qian");

**claims 10-23** were rejected under 35 U.S.C. §103(a) as being unpatentable over Tomizawa in view of U.S. Patent No. 5,900,886 to Shay ("Shay").

#### **Request for Withdrawal of Finality**

It is respectfully submitted that the finality of the Office Action is premature. It is respectfully submitted that before final rejection is in order, a clear issue should be developed between the Examiner and the Applicant (MPEP 706.07).

On page 7 of the present Office Action, in the -- Response to Arguments -- section, the Office Action makes reference to column 2, lines 25-67; column 2, lines 45-46; and column 2, lines 25-28, of Tomizawa. On page 8, the Office Action makes reference to column 1, lines 26-46; column 2, line 60 -- column 3, line 20; column 2, lines 54-62; and column 3, lines 20-22, of Qian. It is respectfully submitted that the explanations and discussion presented with reference to these new citations were not presented in the previous Office Actions.

Therefore, a clear issue had not been developed between the Examiner and the Applicant before the issuance of this Final Office Action. For example, that the Examiner interprets the phrase -- deriving a color component having a low correlation with luminance -- as -- similar luminance as a conflicting color -- is presented for the first time in this Response to Arguments.

For the foregoing reasons, withdrawal of the finality of the rejection is respectfully requested, either on the basis that a clear issue had not been developed between the Examiner and the Applicant prior to the issuing of the final rejection (MPEP 706.07) or on the basis that through this Response to Arguments, the Office Action is introducing new grounds of rejection that is neither necessitated

by Applicant's amendment of the claims, nor based on information submitted in an Information Disclosure Statement filed during the period set forth in 37 C.F.R. 1.97(c) with the fee set forth in 37 C.F.R. 1.17(p)(MPEP 706.07(a)).

### **Reply to the Response to Arguments**

In responding to arguments that Tomizawa fails to disclose classifying peaks within a histogram that have similar luminance as conflicting colors, the Office Action explains that the Examiner interprets -- low correlation with luminance -- as -- similar luminance --. However, it is respectfully submitted that correlation is the state of relation of being correlated; specifically: a relation existing between phenomena or things or between mathematical or statistical variables which tend to vary, be associated, or occur together in a way not expected on the basis of chance alone. Therefore, it is respectfully submitted that things that have low correlation are relatively unrelated to each other.

Therefore, it is respectfully submitted that any disclosure in Tomizawa of a method to derive a value of a color component having a low correlation with luminance (i.e., without regard to luminance) is not fairly interpreted as being related to a search for colors having similar or conflicting luminance and claims 4-23 are not obvious in light of Tomizawa alone or in any combination that relies on Tomizawa for disclosure of classifying pixels based on luminance.

In responding to arguments of the Applicant that Qian fails to disclose or suggest applying a modulation, the Office Action directs the attention of the Applicant to separate portions of columns 1, 2 and 3 which summarize various references which appear to be prior art to Qian. It is respectfully submitted that the references are all related to identifying characteristics of images that can be used in creating an index of images. The Office Action asserts that Qian discloses characterizing an image based on color content of the image and further discloses the use of color histograms to calculate the frequency distribution of a pixel and a function of the color, and that it is not possible to distinguish between color of an image with the same pixel elements using a color histogram and directs the attention of the Applicant to column 1, lines 26-46.

However, it is respectfully submitted that this is a mischaracterization of Qian. Column 1, lines 26-46, summarize a paper by Swain, et al. entitled COLOR INDEXING. The summary indicates that "a color histogram of an image is obtained

by calculating frequency distribution of picture elements or pixels as a function of pixel color. Color histograms are invariant to translation or rotation of the image about the viewing axis. Color histograms can differ markedly for images with differing features. However, all spatial information about features in the image is discarded in the creation of the color histogram. Therefore, as long as two images have the same number of picture elements of each color, it is not possible to distinguish between them using color histograms. This is true even if the two images contain features of completely different size or shape. For example, the total areas of the like-colored (like hatched) geometric features of the two images of FIG. 1A and FIG. 1B of Qian are equal and require the same number of picture elements. The images cannot be distinguished on the basis of their color histograms even though the features are clearly very different in size and number, and the images are easily distinguishable by the human eye.” (Emphasis added)

It is respectfully submitted that column 1, lines 26-46, do not disclose or suggest that “it is not possible to distinguish between color of an image with the same pixel elements using a color histogram.” Furthermore, it is respectfully submitted that the subject matter of column 1, lines 26-46, is unrelated to the subject matter of the claims of the present application.

The Office Action also asserts that “Qian further discloses using considerable spatial information about the image to avoid a blob representation . . . to distinguish images on the basis of their content.” In support of this assertion, the Office Action directs the attention of the Applicant to column 2, line 60 – column 3, line 20, which is a summary of a reference by Carson, et al. and further asserts that “Qian discloses quantifying a color of an image for a predefined area of size and shape.”

The Office Action then asserts that it is the interpretation of the Examiner that Qian discloses quantifying the color of an image according to spatial information of the image. The Office Action goes on to assert that this somehow suggests applying spatial modulation of an image.

However, it is respectfully submitted that Qian discusses techniques for analyzing an image and does not disclose or suggest methods for adapting a color image for rendering with a black and white or monochrome printer. Furthermore, the claims of the present application do not recite applying spatial modulation of an image. Instead, for example, claim 4 recites applying at least one distinct spatial modulation to at least one respective single colorant version of at least one of the

conflicting colors, thereby ensuring that all single colorant versions of colors in the image are visually distinguishable from one another while minimizing distortions in a remainder of the single colorant version of the image. It is respectfully submitted that using spatial information in an image to help classify the image is not fairly read as disclosing applying a spatial modulation to a single colorant version of a conflicting color.

For at least the foregoing reasons, Tomizawa and Qian do not disclose or suggest the elements for which they are relied upon, and the claims of the present application are not anticipated or obvious in light of Tomizawa and Qian taken alone or in any combination.

Regarding arguments related to Shay, the Office Action asserts that the features upon which Applicant relies (i.e., modulation of a black and white version of a conflicting color) are not recited in the rejected claims. However, Shay is cited against claims 10-23. Independent claim 10 cites a gray scale modulator operative to add spatial modulations to single colorant (e.g., black and white) versions of only the conflicting colors within a single colorant version of a color image. Independent claim 21 recites selectively spatially modulating a portion of the single colorant version (e.g., black and white) of the image that is associated with one of the conflicting colors. Clarification of the Examiner's position is respectfully requested.

With regard to hindsight reasoning, the Office Action asserts that hindsight reasoning is proper so long as it takes into account only the knowledge which was within the level of ordinary skill of the time the claimed invention was made and does not include knowledge gleaned only from the Applicant's disclosure. However, it is the contention of the Applicant that the motivation to combine the references is only gleaned from the Applicant's disclosure. For example, in the rejection of claims 4-9, the only motivation to combine the Qian and Tomizawa offered by the Office Action is that it would have been obvious of one of ordinary skill in the art at the time of the invention to include applying spatial modulation to one representative color of the conflicting colors, as Qian teaches, in the system of Tomizawa, to avoid a color blob and to allow a user to distinguish image features.

However, Qian does not disclose or suggest applying a spatial modulation. Instead, it is respectfully submitted that Qian discloses a method for characterizing an image comprising the steps of defining a spatial structural element including a plurality of picture elements, delineating on the image a number of test areas

corresponding to the spatial structural element, and quantifying the color or, in the alternative, the texture of the image in the delineated test areas (column 3, lines 8-15).

Color blob generation is not an issue for Tomizawa. It is respectfully submitted that Tomizawa is concerned with identifying unimportant and important portions of an image so that aggressive (i.e., lossy) compression techniques may be applied to the unimportant portions of the image and less aggressive (i.e., less lossy) compression, or no compression at all, can be applied to the important portions of the image. It is respectfully submitted that since Tomizawa is unconcerned with color blob generation, there is no motivation to combine the teachings of Qian with the system of Tomizawa in order to prevent color blob generation.

Therefore, it is respectfully submitted that the motivation to combine the references could only have been gleaned from the disclosure of the present application.

In explaining the rejection of claims 10-23, the only motivation to combine the references provided by the Office Action is the assertion that it would have been obvious to one of ordinary skill in the art at the time of the invention to include applying a special modulation to one representative color of the conflicting colors, as Shay teaches, in the system of Tomizawa to allow a user to distinguish between colors having a close correlation with luminance.

However, Shay does not disclose or suggest applying a spatial modulation to distinguish conflicting colors. It is respectfully submitted that Shay discloses applying a modulation to avoid flicker (column 2, line 12). Flicker is not an issue for Tomizawa. Furthermore, Tomizawa is not concerned with allowing a user to distinguish between colors having a close correlation of luminance. Indeed, Tomizawa allegedly discloses deriving a value of a color component having a low correlation with luminance (column 2, lines 25-27). As indicated above, it is respectfully submitted that Shay does not disclose applying a spatial modulation to one representative color of the conflicting colors. However, even if Shay did make such a disclosure, since Tomizawa is not concerned with allowing users to distinguish between colors having a close correlation with luminance, there is no motivation to combine teachings of Shay with the system of Tomizawa in order to distinguish between colors having close correlation with luminance.

Therefore, any motivation to combine Tomizawa and Shay could only have been gleaned from the present application, and the rejection of claims 10 and 23 are based on impermissible hindsight.

#### **The Claims are not Obvious**

**Claims 4-9** were rejected under 35 U.S.C. §103(a) as being unpatentable over Tomizawa in view of Qian. In explaining these rejections, the Office Action simply restates the explanations provided in the previous Office Action. In this regard, arguments similar to those submitted in support of **claims 4-9** in Applicant's Amendment C, mailed on or about October 20, 2004, are once again submitted in support of **claims 4-9**. For example, in explaining the rejection of **claim 4**, the Office Action asserts that Tomizawa discloses a method for rendering an image described in a multi-color color space in a single colorant color space. In support of this assertion, the Office Action directs the attention of the Applicant to column 7, lines 23-31; column 6, lines 1-5; and column 5, lines 31-47. However, it is respectfully submitted that Tomizawa is unconcerned with rendering an image described in a multi-color color space in a single colorant color space, and the cited portions of Tomizawa do not support the assertions of the Office Action.

For at least these reasons, the reasons presented in Applicant's Amendment C, and the reasons cited above in the Reply to the Response to Arguments section, **claims 4-9** are not anticipated and are not obvious in light of Tomizawa and Qian taken alone or in any combination.

**Claims 10-23** were rejected under 35 U.S.C. §103(a) as being unpatentable over Tomizawa in view of Shay. In explaining these rejections, the Office Action repeats explanations provided in the previous Office Action. In this regard, arguments similar to those submitted in support of **claims 10-23** in Applicant's Amendment C mailed on or about October 20, 2004 are submitted in support of **claims 10-23**. For example, in explaining the rejection of **claim 10**, the Office Action asserts that Tomizawa discloses an image processor operative to generate a single colorant version of a color image comprising an image analyzer operative to find and classify conflicting colors in the color image. In support of this assertion, the Office Action directs the attention of the Applicant to input color spaced discriminating portion, column 7, lines 24-38, which prepare input colors and extracts color components of a detected peak in the histogram for a color space.

However, it is respectfully submitted that nothing in column 7, lines 24-38, discloses or suggests generating single colorant version of a color image.

Furthermore, nothing in column 7, lines 24-38, discloses or suggests an image analyzer operative to find and classify conflicting colors in a color image. Additionally, as explained above, the reference to colors having low correlation with luminance is not fairly read as a reference to conflicting colors having similar luminance.

For at least the foregoing reasons, the reasons presented in Applicant's Amendment C, and the reasons cited above in the Reply to the Response to Arguments section, **claims 10-23** are not anticipated and are not obvious in light of Tomizawa and Shay taken alone or in any combination.

#### Telephone Interview

In the interests of advancing this application to issue the Applicant(s) respectfully request that the Examiner telephone the undersigned to discuss the foregoing or any suggestions that the Examiner may have to place the case in condition for allowance.

#### CONCLUSION

**Claims 1-3** stand withdrawn with traverse. **Claims 4-23** remain in the application. For the foregoing reasons, the case is in condition for allowance. Accordingly, an early indication of thereof is respectfully requested.

Respectfully submitted,

FAY, SHARPE, FAGAN,  
MINNICH & McKEE, LLP

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Date

Joseph D. Dreher  
Joseph D. Dreher  
Reg. No. 37,123  
Thomas Tillander  
Reg. No. 47,334  
1100 Superior Avenue, 7<sup>th</sup> Floor  
Cleveland, Ohio 44114-2579  
(216) 861-5582